

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) An apparatus for generating a three-dimensional data set, comprising:

an acquiring portion for acquiring a first original data set and a second original data set, the first original data set and the second original data set respectively representing first and second original images, each of the first and second original images being obtained by imaging a same object from differing observation points;

a resolution multiplication unit for converting the first original data set and the second original data set to a first low resolution data set and a second low resolution data set, respectively;

an extracting portion for ~~extracting~~ separating high precision areas from low precision areas in the first original data set; and

a corresponding point searching unit for searching at least one set of corresponding points in the low precision areas and for searching at least one set of corresponding points in the high precision areas, the corresponding point searching unit uses results of the search of corresponding points in the low precision areas as a default for beginning the search of corresponding points in the high precision areas; and

a three-dimensional generating portion for generating a three-dimensional data set of the object using the corresponding points found by the corresponding

point searching unit and the first original data set and the second original data set and the first low resolution data set and the second low resolution data set;

wherein the three-dimensional data set comprises a first part and a second part, the first part is generated using the first original data set and the second original data set, and the second part is generated using the first low resolution data set and the second low resolution data set; and

the first part of the three-dimensional data set comprises the extracted high precision areas.

2. (Cancelled)

3. (Original) The apparatus of claim 1, wherein the three-dimensional generating portion includes:

a three-dimensional reconstruction portion for producing three-dimensional position data using the first low resolution data set and the second low resolution data set; and

a standard model fitting portion for fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set.

4. (Original) The apparatus of claim 3, further comprising:

an extracting portion for projecting high-precision areas of the standard model onto the first original image and extracting the projected areas as a first partial image; and

a seeking portion for seeking points corresponding to points in the first partial image within the second original image;

wherein the first part of the three-dimensional data set is generated by the sought corresponding points.

5. (Canceled)

6. (Currently Amended) A three-dimensional data generating device, comprising:

a device for inputting multiple images having a first resolution from different viewpoints of an object;

a converter for performing a resolution conversion of each of the input multiple images to generate converted images having a second resolution that is different than the first resolution;

a characteristic area extraction unit for detecting characteristic areas of the object from at least one of the input multiple images;

a corresponding point searching unit for searching at least one set of corresponding points in the second resolution images and for searching at least one set of corresponding points in the characteristic areas, the corresponding point searching unit uses results of the search of corresponding points in the second resolution images as a default for beginning the search of corresponding points in the characteristic areas; and

a three-dimensional construction unit for constructing three-dimensional data of the object by using the corresponding points found by the corresponding point searching unit and data from the input images for the characteristic areas of the object and by using data from the converted images for remaining areas of the object;

wherein the first resolution is higher than the second resolution.

7. (Original) The three-dimensional data generating device of claim 6, further comprising:

a first memory for storing the input multiple images; and

a second memory for storing the converted images.

8. (Canceled)

9. (Original) The three-dimensional data generating device of claim 6, wherein the data used by the construction unit is combined and stored.

10. (Original) The three-dimensional data generating device of claim 6, wherein the data used by the constructing unit is stored separately.

11. (Currently Amended) A three-dimensional data generating device, comprising:

a device for inputting multiple images that include multiple images obtained from different viewpoints of an object and having different resolutions;

a characteristic area extraction unit for selecting specific areas from at least one image;

a corresponding point searching unit for searching at least one set of corresponding points in the second resolution images and for searching at least one set of corresponding points in the characteristic areas, the corresponding point searching unit uses results of the search of corresponding points in the second resolution images as a default for beginning the search of corresponding points in the characteristic areas; and

a three-dimensional construction unit for reconstructing three-dimensional data of the object by using, from among said multiple images having different resolutions, high-resolution images for the selected areas, and low-resolution images for the non-selected areas, and by seeking correspondence between the images obtained from different viewpoints.

12. (Currently Amended) A three-dimensional data generating device, comprising:

a device for inputting multiple images of an object obtained from different viewpoints;

a converter for performing resolution conversion regarding each of the input multiple images and generating multiple images having different resolutions;

a searching unit for seeking correspondence between the images obtained from different viewpoints using low-resolution images and reconstructing low-resolution three-dimensional data of the object;

a fitting unit for fitting a standard model to the reconstructed low-resolution three-dimensional data;

a unit for projecting the specific areas specified in said standard model to an image having a higher resolution than said image based on the result of the fitting;

a correspondence seeking unit for seeking correspondence between the images obtained from different viewpoints using the high-resolution image regarding the areas projected on the higher-resolution image and reconstructing high-resolution three-dimensional data of the object; and

a replacing device for replacing the low-resolution three-dimensional data regarding said specific areas with high-resolution three-dimensional data;

wherein the specific areas are designated in the standard model in advance.

13. (Currently Amended) A method for generating a three-dimensional data set, the method comprising:

acquiring a first original data set and a second original data set, the first original data set and the second original data set respectively representing first and second original images, each of the first and second original images being obtained by imaging a same object from differing observation points;

converting the first original data set and the second original data set to a first low resolution data set and a second low resolution data set, respectively;

~~extracting~~ separating high precision areas from low precision areas in the first original data set;

searching at least one set of corresponding points in the low precision areas and for searching at least one set of corresponding points in the high precision areas, using results of the search of corresponding points in the low precision areas as a default for beginning the search of corresponding points in the high precision areas; and

generating a three-dimensional data set of the object using the corresponding points found by the searches and the first original data set and the second original data set and the first low resolution data set and the second low resolution data set;

wherein the three-dimensional data set comprises a first part and a second part, the first part is generated using the first original data set and the second original data set, and the second part is generated using the first low resolution data set and the second low resolution data set; and

the first part of the three-dimensional data set comprises the extracted high precision areas.

14. (Cancelled)

15. (Original) The method of claim 13, wherein the generating step includes: producing three-dimensional position data using the first low resolution data set and the second low resolution data set; and

fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set.

16. (Original) The method of claim 15, further comprising: projecting high-precision areas of the standard model onto the first original image and extracting the projected areas as a first partial image; and seeking points corresponding to points in the first partial image within the second original image;

wherein the first part of the three-dimensional data set is generated by the sought corresponding points.

17. (Canceled)

18. (Currently Amended) A method of generating three-dimensional data, comprising the steps of:

inputting multiple images having a first resolution from different viewpoints of an object;

performing a resolution conversion of each of the input multiple images to generate converted images having a second resolution that is different than the first resolution;

detecting characteristic areas of the object from at least one of the input multiple images;

searching at least one set of corresponding points in the second resolution images and for searching at least one set of corresponding points in the characteristic areas, using results of the search of corresponding points in the second resolution images as a default for beginning the search of corresponding points in the characteristic areas; and

constructing three-dimensional data of the object by using the corresponding points found by the searches and data from the input images for the characteristic areas of the object and by using data from the converted images for remaining areas of the object;

wherein the first resolution is higher than the second resolution.

19. (Canceled)

20. (Original) The method of claim 18, further comprising the steps of combining and storing the three-dimensional data.

21. (Original) The method of claim 18, wherein the three-dimensional data is stored separately.

22. (Original) A recording medium for recording a program for generating three-dimensional data according to the method of claim 13.